Utah Department of Transportation



Supplemental Drawings for

2005 Standard Specifications

FOR ROAD AND BRIDGE CONSTRUCTION

U.S. Standard Units (Inch-Pound Units)

Memorandum

UTAH DEPARTMENT OF TRANSPORTATION

DATE: March 8, 2007

TO: Holders of Hard Copy of Standard Drawings

FROM: Barry Axelrod, CDT

Standards and Specifications

SUBJECT: Supplemental Drawing Distribution, dated March 8, 2007

Applicable files for the change are attached. Maintain these files as a supplemental update to the UDOT Standard Drawings dated February 1, 2007. No pages are to be removed or replaced in the basic book, electronic or hard copy.

If you are in need of electronic copies of any Standard or Supplemental Drawing please refer to the Standards and Specifications Web site at http://www.udot.utah.gov/index.php?m=c&tid=302. From there select the **2005 Standards** subtopic.

Please note that the 2005 Standards are still in effect. The next version of the Standards is planed for 2008.

If you have any questions or problems with the electronic files contact me at 801-964-4570 or by email at baxelrod@utah.gov.

Attachments

STANDARD DRAWINGS INDEX (Supplemental Issue #1, March 8, 2007) UTAH DEPARTMENT OF TRANSPORTATION

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AT 15	RWIS Site And Foundation Details	02/22/07
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AT 18	TMS Detection Zone Layout	02/22/07
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BA 1B	Precast Concrete Full Barrier Standard Section	08/25/05
BA 1C	Precast Concrete Barrier Terminal For Speed ≤ 40 MPH	01/01/05
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BA 1E	Precast Concrete Full Section Shoulder Applications	02/22/07
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D 1 4 G	Cushion And W-Beam Guardrail	11/30/06
BA 3C	Precast Constant Slope Concrete Barrier (Type X Joint Connection	
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BA 4C	W-Beam Guardrail Transition Curb Section	02/22/07
BA 4D	W-Beam Guardrail Anchor Type I	11/30/06
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BA 4I	W-Beam Guardrail Buried In Backslope Terminal	01/01/05

BA 4J	W-Beam Guardrail Buried In Backslope Terminal With Rub Rail	01/01/05
BA 4K	W-Beam Guardrail Buried In Backslope Terminal Anchor	01/01/05
BA 4L	W-Beam Guardrail Curve Details	11/30/06
BA 4M	W-Beam Guardrail Nested Guardrail 12' 6" Span	01/01/05
BA 4N	W-Beam Guardrail Nested Guardrail 18' 9" Span	01/01/05
BA 4O	W-Beam Guardrail Nested Guardrail 25' Span	01/01/05
	<u> •</u>	
BA 4P	W-Beam Guardrail With Precast Barrier For Span > 25'	11/30/06
BA 4Q		Not Use
BA 4R	W-Beam Median Barrier Transition	10/27/05
BA 4S1	W-Beam Guardrail With Modified Curb and Curb and Gutter	11/30/06
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CB 2	Open Curb Inlet	04/28/05
CB 3	Shallow Catch Basin	04/28/05
CB 4	Open Curb Shallow Catch Basin	01/01/05
CB 5A	Standard Catch Basin and Cleanout Box	06/30/05
CB 5B	Standard Catch Basin and Cleanout Box Section	01/01/05
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CB 6B	Berm Apron With Drop Inlet Type "A"	01/01/05
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CB 9B	Standard Catch Basin And Cleanout Box Section Details	01/01/05
CB 9C	Standard Catch Basin And Cleanout Box Schedule Of	01/01/03
CD 9C		01/01/05
CD OD	Installation 18" to 42" RCP 12" to 48" CMP	01/01/05
CB 9D	Standard Catch Basin And Cleanout Box Schedule Of	01/01/05
~~	Installation 48" to 66" RCP 60" to 78" CMP	01/01/05
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CC 2	Crash Cushion Drainage Details Guideline A	01/01/05
CC 3	Crash Cushion Drainage Details Guideline B	01/01/05
CC 4	Details For Placement Crash Cushions Type A, B, And D	01/01/05
CC 5A	Grading And Placement Details Crash Cushion Type C "Brakemaster"	, 10/27/05
CC 5B	Grading And Placement Details Crash Cushion Type C "C.A.T"	10/27/05
CC 5C	Grading And Placement Details Crash Cushion Type C "FLEAT-MT"	
-	6	

CC 6	Crash Cushion Type E Sand Barrel Details	01/01/05
CC 7A	Grading And Installation Details Crash Cushion Type F Quad	02/24/05
CC 7B	Trend 350 Crash Cushion Type F BEAT-SSCC	02/24/05 08/25/05
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CC 8B	Grading And Installation Details For "3R" Projects Crash	11/30/00
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CC 9A	Grading And Installation Details Crash Cushion Type H	11/30/06
CC 9B	Grading And Installation Details Crash Cushion Type H	
	(Parabolic Flare)	04/28/05
	Diversion Boxes (DB)	
DB 1A	Standard Diversion Box/Cover Plate/Grating For 18" DIA.	
	or 24" DIA. Pipe	01/01/05
DB 1B	Standard Diversion Box Hinged Lid Details For 18" DIA.	
	or 24" DIA. Pipe	01/01/05
DB 1C	Standard Diversion Box Bicycle - Safe Grating Details For	
	18" DIA. or 24" DIA. Pipe	01/01/05
DB 1D	Standard Diversion Box Three Gate Box Sections For 18" DIA.	
	or 24" DIA. Pipe	01/01/05
DB 1E	Standard Diversion Box Three Gate Box Sections For 18" DIA.	01/01/05
DD 1F	or 24" DIA. Pipe	01/01/05
DB 1F	Standard Diversion Box Three Gate Box Sections For 18" DIA. or 24" DIA. Pipe	01/01/05
DB 2A	Standard Diversion Box w/Interchangeable Walls, Bottom Slab,	01/01/03
DD ZA	Walls And Apron Details	01/01/05
DB 2B	Standard Diversion Box w/Interchangeable Walls, Quantities	01/01/03
22 22	Schedule	01/01/05
DB 2C	Standard Diversion Box w/Interchangeable Walls, Hand Slide	
	Gate Details	01/01/05
DB 2D	Standard Diversion Box Type "G" Hand Slide Gate Details	01/01/05
DB 2E	Standard Diversion Box Hinged Lid (Solid Cover Plate)	
	Type "A" Details Type I Plan	01/01/05
DB 2F	Standard Diversion Box Hinged Lid (Solid Cover Plate)	0.4.0.4.0.
DD 4.0	Type "A" Details Type II Plan	01/01/05
DB 2G	Standard Diversion Box Hinged Lid Solid Cover Type "B" Details	01/01/05
DB 2H	Standard Diversion Box Hinged Lid Solid Cover Type "B"	01/01/05
DD 2 A	And "C" Details Standard Diversion Day With Manhala Cover Situation And Levent	01/01/05 01/01/05
DB 3A DB 3B	Standard Diversion Box With Manhole Cover Situation And Layout Standard Diversion Box With Manhole Cover Up To 42" RCP	01/01/03
טט טט	And Up To 54" CMP	01/01/05
DB 3C	Standard Diversion Box With Manhole Cover 48" to 72" RCP	01/01/02
	And 60" to 84" CMP	01/01/05
DB 4	Standard Transition Concrete Lined Ditch To Pipe Or Diversion Box	01/01/05
		,

	Design Drawings (DD)	
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DD 2	Surface Ditch, Benched Slope, And Cut Ditch Details	01/01/05
DD 3	Climbing Lanes	01/01/05
DD 4	Geometric Design for Freeways (Roadway)	04/28/05
DD 5	Entrance And Exit Ramps At Crossroads	01/01/05
DD 6	Entrance And Exit Ramp Geometrics	01/01/05
DD 7	Freeway Crossover	01/01/05
DD 8	Structural Geometric Design Standards For Clearances	01/01/05
DD 9	Structural Geometric Design Standards	01/01/05
DD 10	Railroad Clearances At Highway Overpass Structures	01/01/05
DD 11	Rural Multi Lane Highways Other Than Freeways	01/01/05
DD 12	Rural Two Lane Highways	01/01/05
DD 13	Frontage And Access Roads (Under 50 ADT)	01/01/05
DD 14	Typical Rural 2 Lane Road With Median Lane And	
	Deceleration Lane For Intersecting Crossroads	01/01/05
	During as (DC)	
DC 1	Drainage (DG)	09/25/05
DG 1	Fill Height for Metal Pipe (Steel)	08/25/05
DG 2	Fill Height for Metal Pipe (Aluminum)	01/01/05
DG 3	Maximum Fill Height For HDPE And PVC Pipes	01/01/05
DG 4	Pipe Minimum Cover	01/01/05
DG 5A	Plastic Pipe Culvert Installation	02/23/06
DG 5B	Metal Pipe Or Pipe Arch Culvert Installation	02/23/06
DG 5C	Precast Concrete Pipe Culvert Installation	02/23/06
DG 6	Safety Slope End Section For Circular and Arched Pipes	02/23/06
DG 7	Gasketted Joints Or Coupling Bands For CMP	01/01/05
DG 8	Metal Culvert End Section	01/01/05
DG 9	Miscellaneous Pipe Details	02/23/06
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EN 2	Temporary Erosion Control (Silt Fence)	08/25/05
EN 3	Temporary Erosion Control (Slope Drain And Temporary Berm)	08/25/05
EN 4	Temporary Erosion Control (Drop Inlet Barriers)	08/25/05
EN 5	Temporary Erosion Control (Pipe Inlet And Curb Inlet Barriers)	08/25/05
EN 6	Temporary Erosion Control (Sediment Trap and Stabilized	
	Construction Entrance)	08/25/05
EN 7	Temporary Erosion Control (Straw Bale Barrier)	08/25/05
	Fence And Gates (FG)	
FG 1A	Right Of Way Fence And Gates (Wood Post)	01/01/05
FG 1B	Right Of Way Fence And Gates (Wood Post)	01/01/05
FG 2A	Right Of Way Fence And Gates (Wood Fost) Right Of Way Fence And Gates (Metal Post)	01/01/05
FG 2B	Right Of Way Fence And Gates (Metal Post)	01/01/05
1020	right of may rence this outes (metal rost)	01/01/03

FG 3	Swing Gates Type I For Gates Less Than 17'	02/24/05
FG 4A	Deer Crossing Details	04/28/05
FG 4B	Deer Ramp Details	04/28/05
FG 5	Swing Gates Type II For Gates Wider Than 17'	01/01/05
FG 6	Chain Link Fence	01/01/05
rdv	Chain Ellik I chec	01/01/03
	Grates, Frames, And Trash Racks (GF)	
GF 1	Manhole Frame And Grated Cover	01/01/05
GF 2	Manhole Frame And Solid Cover	01/01/05
GF 3	Rectangular Grate And Frame	01/01/05
GF 4	Directional Flow Grate And Frame	01/01/05
GF 5	Solid Cover And Frame	01/01/05
GF 6	Manhole Steps	01/01/05
GF 7	Standard Screw Gate And Frame	01/01/05
GF 8	2' x 2' Grate And Frame	01/01/05
GF 9	28" x 24" Directional Flow Grate And Frame	01/01/05
GF 10	Standard Trash Racks 90 ° X-ing Angle	01/01/05
GF 11	Standard Trash Racks	01/01/05
GF 12	Standard Trash Racks	01/01/05
GF 13	Open Curb Inlet Grate and Frame	01/01/05
GF 14	Solid Cover For Std Dwg DB 1 MS-18 Loading	01/01/05
GF 15	Standard Screw Gate And Frame	01/01/05
~~~.	General Road Work (GW)	0.4.10.4.10.5
GW 1	Raised Median And Plowable End Section	01/01/05
GW 2	Concrete Curb And Gutter	01/01/05
GW 3	Concrete Curb And Gutter Details	01/01/05
GW 4	Concrete Driveways And Sidewalks	01/01/05
GW 5A	Pedestrian Access	02/23/06
GW 5B	Pedestrian Access	02/23/06
GW 5C	Pedestrian Access	06/30/05
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GW 7	Newspaper And Mailbox Stop Layout	01/01/05
GW 8	Newspaper And Mailbox Support Hardware	02/22/07
GW 9	Delineation Hardware	01/01/05
GW 10	Delineation Application	01/01/05
GW 11	Sidewalks And Shoulders On Urban Roadways	01/01/05
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PV 1	Joints For Highways With Concrete Traffic Lanes And Shoulders	01/01/05
PV 2	Pavement/Approach Slab Details	01/01/05
PV 3	Concrete Pavement Details For Urban And Interstate	01/01/05
PV 4	Concrete Pavement Details For Urban And Interstate	01/01/05
PV 5	Urban Concrete Pavement Details	01/01/05
PV 6	Rumble Strips	02/22/07
	•	
PV 7	Rumble Strips - Typical Application	02/22/07

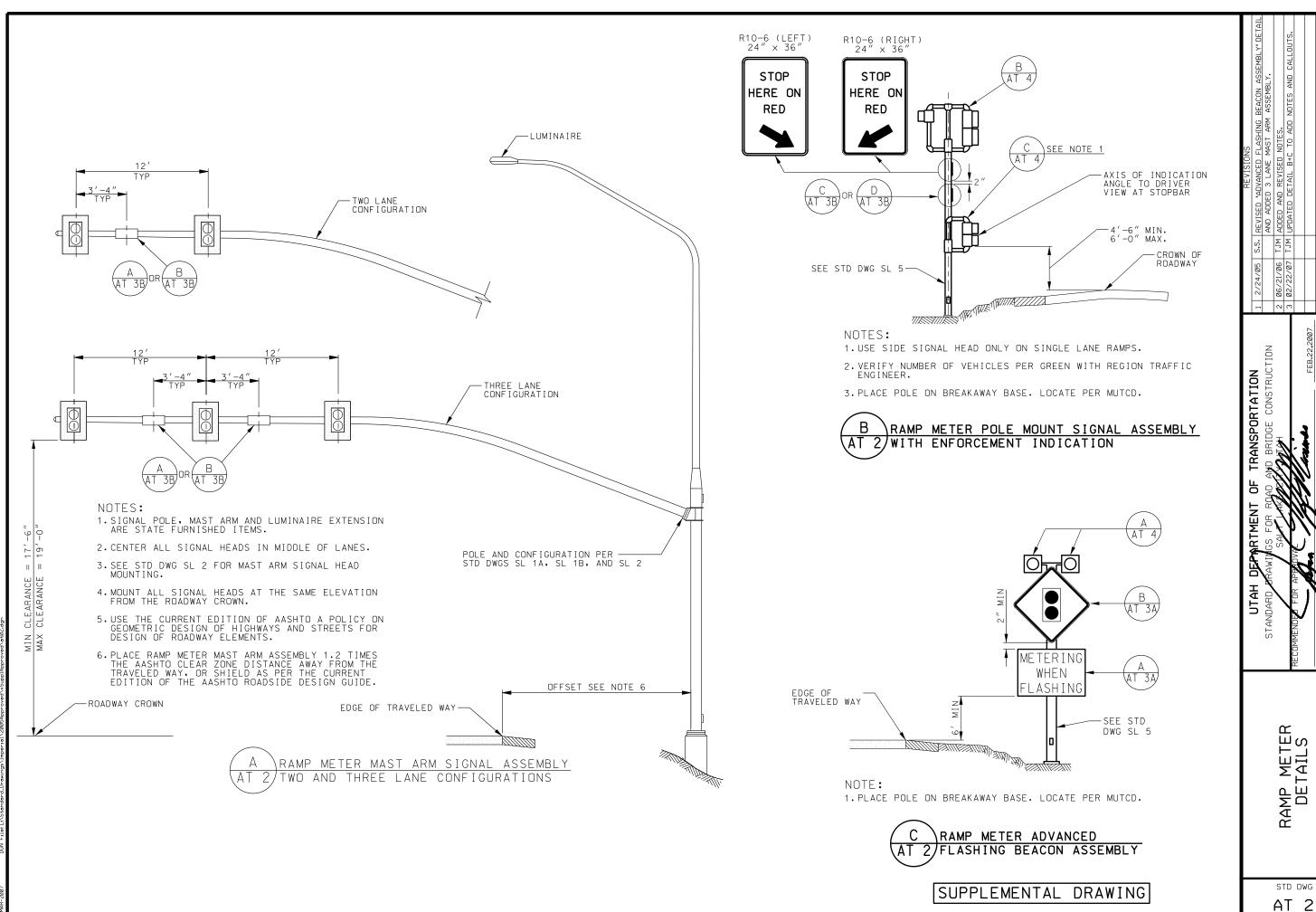
PV 8	Not Used	
PV 9	Dowel Bar Retrofit	02/22/07
	Signals (SL)	00/00/06
SL 1A	Traffic Signal Mast Arm Pole And Luminaire Extension	02/23/06
SL 1B	Traffic Signal Mast Arm Pole And Luminaire Extension	02/23/06
SL 2	Traffic Signal Mast Arm Details 30' Thru 75'	02/23/06
SL 3	Underground Service Pedestal Details	02/23/06
SL 4	Traffic Signal Mast Arm Pole Foundation	02/23/06
SL 5	Traffic Signal Pole  Pala Mayartad Payara Sayara Dataila	02/23/06
SL 6	Pole Mounted Power Source Details	01/01/05
SL 7	Span Wire Signal Pole Details	01/01/05
SL 8 SL 9	Signal Head Details	02/23/06 <b>02/22/07</b>
SL 9 SL 10	Pedestrian Signal Assembly Traffic Signal Controller Base Details	02/23/06
SL 10 SL 11	Traffic Signal Loop Detector Details	02/23/06
SL 11 SL 12	Traffic Counting Loop Detector Details	04/28/05
SL 12 SL 13	Video Detection Camera Mount	04/23/05
SL 13	Highway Luminaire Pole Ground Mount	08/25/05
SL 14 SL 15	Luminaire Slip Base Details	08/25/05
SL 16	Highway Luminaire Pole Barrier Mount	01/01/05
SL 17	Highway Luminaire Pole Foundation Extension	01/01/05
SL 18	Single Transformer Substation Details	01/01/05
2 2	2-2-6-0	
	Signs (SN)	
SN 1	Bridge Load Limits Signs	01/01/05
SN 2	School Speed Limit Assembly	01/01/05
SN 3	Overhead School Speed Limit Assembly	01/01/05
SN 4	Flashing Stop Sign	01/01/05
SN 5	Typical Installation For Milepost Signs	01/01/05
SN 6	Speed Reduction Sign Sequence	01/01/05
SN 7	Placement of Ground Mounted Signs	01/01/05
SN 8	Ground Mounted Timber Sign Post (P1)	04/28/05
SN 9	Ground Mounted Tubular Steel Sign Post (P2)	02/22/07
SN 10	Ground Mounted Square Steel Sign Post (P3)	01/01/05
SN 11	Slipbase Ground Mounted Tubular Steel Sign Post (P4)	04/28/05
SN 12A	Ground Mounted Sign Installation Details	08/25/05
SN 12B	Ground Mounted Sign Installation Details	01/01/05
SN 12C	Ground Mounted Sign Installation Details	01/01/05
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ST 1	Object Markers "T" Intersection And Pavement Transition Guidance	01/01/05
ST 2	Freeway Crossover Markings	01/01/05
ST 3	Typical Pavement Markings	02/22/07
ST 4	Crosswalks, Parking And Intersection Approaches	02/22/07
ST 5	Painted Median And Auxiliary Lane Details	02/23/06

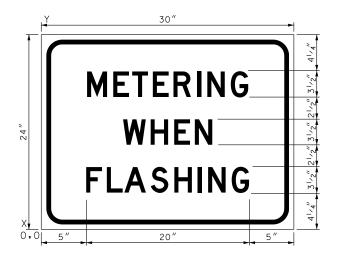
ST 6	Passing/Climbing Lanes Traffic Control	01/01/05
ST 7	Pavement Markings And Signs At Railroad Crossing	01/01/05
ST 8	Plowable Pavement Markers	01/01/05
ST 9	School Crossing And School Message	01/01/05
	Structures And Walls (SW)	
SW 1A	Welded End Guard Unit	01/01/05
SW 1B	Precast Concrete Cattle Guard	01/01/05
SW 1B SW 2	Noise Wall Placement Area	01/01/05
SW 2 SW 3A	Precast Concrete Noise Wall 1 Of 2	01/01/05
SW 3B	Precast Concrete Noise Wall 2 Of 2	01/01/05
SW 4A	Precast Concrete Retaining/Noise Wall 1 Of 2	01/01/05
SW 4B	Precast Concrete Retaining/Noise Wall 2 Of 2	02/23/06
SW 4D	1 recust Concrete returning/1voise wan 2 of 2	02/25/00
	Traffic Control (TC)	
TC 1A	Construction Zone Channelization Devices	01/01/05
TC 1B	Construction Zone Signing	01/01/05
TC 2A	Traffic Control General	01/01/05
TC 2B	Traffic Control General	01/01/05
TC 3	Traffic Control Project Limit Signing	01/01/05
TC 4	Traffic Control Urban Intersections With Roadways Under 50 MPH	01/01/05
TC 5	Traffic Control Urban Intersections With Roadways Under 50 MPH	01/01/05
TC 6	Traffic Control Pedestrian Routing	01/01/05
TC 7	Traffic Control Road Closed, Detour	01/01/05
TC 8	Traffic Control Lane Closure	01/01/05
TC 9	Traffic Control Multilane Closure	01/01/05
TC 10	Traffic Control Expressway And Freeway Crossover/Turn Around	01/01/05
TC 11	Traffic Control Exit Ramp Gore	06/29/06
TC 12	Traffic Control Entrance Ramp Gore	01/01/05
TC 13	Traffic Control Shoulder-Haul Road	01/01/05
TC 14	Traffic Control Flagging Operation	01/01/05
TC 15	Traffic Control 2 Lane/2 Way Seal Coat With Cover Material	01/01/05
TC 16	Traffic Control Pavement Marking	01/01/05

# **Listing of Supplemental Drawings**

# Issue Date: March 8, 2007

Revised February 22,	2007
AT 2	Ramp Meter Details
AT 3	Deleted (Replaced by AT 3A and AT 3B)
AT 3A	Ramp Meter Sign Panel
AT 3B	Ramp Meter Sign Panel
AT 4	Typical Ramp Meter Signal Head Mounting
AT 5	Ramp Meter Loop Installation
AT 6	Conduit Details
AT 7	Polymer-Concrete Junction Box Details
AT 8	ATMS Cabinet
AT 9	ATMS Cabinet Disconnect And Transformer Frame
AT 15	RWIS Site And Foundation Details
AT 16	RWIS Tower Base And Service Pad Layout
AT 17	Ground Rod Installation And Tower Grounding
AT 18	TMS Detection Zone Layout
BA 1E	Precast Concrete Full Section Shoulder Applications
BA 4C	W-Beam Guardrail Transition Curb Section
GW 8	Newspaper And Mailbox Support Hardware
PV 6	Rumble Strips
PV 7	Rumble Strips - Typical Application
PV 9	Dowel Bar Retrofit
SL 9	Pedestrian Signal Assembly
SN 9	Ground Mounted Tubular Steel Sign Post (P2)
ST 3	Typical Pavement Markings
$ST \Delta$	Crosswalks Parking And Intersection Approaches



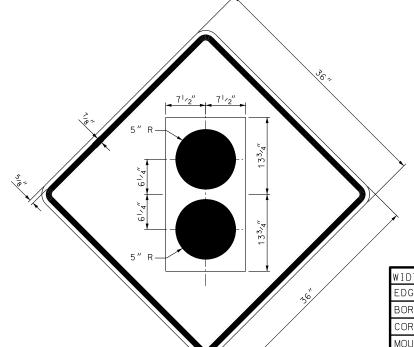


WIDTH × HEIGHT	30" x 24"
EDGE TO BORDER	3 _{/8} "
BORDER WIDTH	5 _{/8} "
CORNER RADIUS	2"
MOUNTING	GROUND
BACKGROUND	TYPE: REFLECTIVE
	COLOR: YELLOW
LEGEND/BORDER	TYPE: NON-REFLECTIVE
	COLOR: BLACK

# COORDINATES ARE TO LOWER LEFT CORNERS

Y FONT			LETTE	R POS	ITIONS	(X)			HT LEN
15 ¹ / ₂	М	Е	T	E	R	I	N	G	31/2
D	5	81/4	10 ⁵ / ₈	13 ¹ / ₈	15 ³ / ₄	18 ⁵ /8	20	23	20
93/4	W	Н	Ε	N					31/2
D	91/2	13	15 ³ / ₄	18 ¹ / ₄					11
4	F	L	Α	S	Н		N	G	31/2
D	5	71/2	9 ⁵ /8	13	15 ³ / ₄	18 ³ / ₄	20	23	201/4

A METERING WHEN FLASHING AT 3A SIGN DETAIL



B ws3-3 AT 3A RAMP METER AHEAD

WIDTH × HEIGHT	36" × 36" (DIAGONAL)
EDGE TO BORDER	5 _{/8} "
BORDER WIDTH	7 _{/8} "
CORNER RADIUS	2 ¹ / ₄ "
MOUNTING	GROUND
BACKGROUND	TYPE: REFLECTIVE
	COLOR: YELLOW
LEGEND/BORDER	TYPE: NON-REFLECTIVE
	COLOR: BLACK
TOP CIRCLE	TYPE: REFLECTIVE
	COLOR: RED
BOTTOM CIRCLE	TYPE: REFLECTIVE
	COLOR: GREEN

SUPPLEMENTAL DRAWING

RAMP METER SIGN PANEL

STD DWG



WIDTH × HEIGHT	60" × 36"
EDGE TO BORDER	3,8"
BORDER WIDTH	5 _{/8} "
CORNER RADIUS	2"
MOUNTING	GROUND
BACKGROUND	TYPE: REFLECTIVE
	COLOR: WHITE
LEGEND/BORDER	TYPE: NON-REFLECTIVE
	COLOR: BLACK

Y   <del>-</del>	60″	†
		51/2"
	2 VEHICLES	, 9
		, 4
36″	PER GREEN	, 9
		,4
	EACH LANE	,,9
$_{_{X}}\left \left U\right \right $		41/2"
	4" 52" 4"	

WIDTH × HEIGHT	60" × 36"
EDGE TO BORDER	3 _{/8} "
BORDER WIDTH	⁵ /8"
CORNER RADIUS	2 "
MOUNTING	GROUND
BACKGROUND	TYPE: REFLECTIVE
	COLOR: WHITE
LEGEND/BORDER	TYPE: NON-REFLECTIVE
	COLOR: BLACK

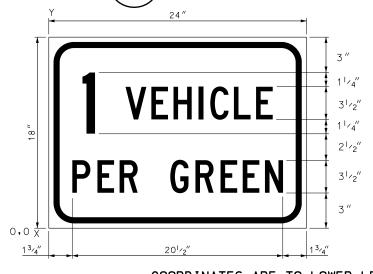
## COORDINATES ARE TO LOWER LEFT CORNERS

Y FONT			LETT	ER POS	NOITI	S (X)			HT LEN
241/2	V	Ε	Н		С	L	Е		6
EM	16 ¹ / ₄	23	28 ⁵ / ₈	35	37 ³ / ₄	43 ³ / ₄	49 ¹ / ₄		37 ¹ / ₂
231/2	1								8
EM	6 ¹ /8								21/2
141/2	Ք	Е	R	G	R	Е	E	Z	6
EM	41/4	10 ⁵ /8	16 ¹ / ₄	27	33 ¹ / ₄	39 ¹ /2	45 ¹ /4	50 ³ / ₄	51 ¹ / ₄
41/2	E	Α	C	Η	L	Α	N	E	6
EM	4	91/4	16 ¹ / ₂	221/2	33 ¹ /8	38	45 ¹ / ₄	51 ¹ / ₂	52

# COORDINATES ARE TO LOWER LEFT CORNERS

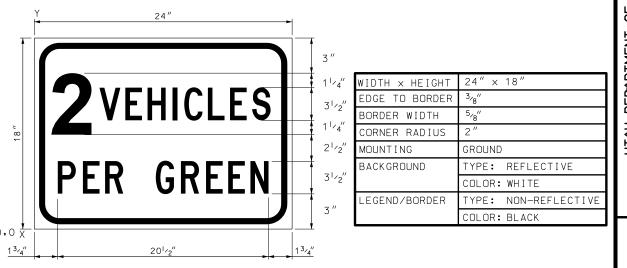
Y FONT			LETT	ER POS	ITION	S (X)			HT LEN
241/2	V	Ε	Н		С	L	Ε	S	6
EM	12 ¹ / ₂	191/4	24 ⁷ / ₈	31 ¹ / ₂	34	40	45 ¹ / ₂	51	431/2
231/2	2								8
EM	5								5
141/2	Ρ	Е	R	G	R	Е	Е	N	6
EM	41/4	10 ⁵ / ₈	16 ¹ / ₄	27	33 ¹ / ₄	391/2	45 ¹ / ₄	50 ³ / ₄	51 ¹ / ₄
41/2	Ε	Α	С	Ι	L	Α	N	Ε	6
EM	4	91/4	16 ¹ / ₂	221/2	33 ¹ / ₈	38	45 ¹ / ₄	51 ¹ / ₂	52

# A 1 VEHICLE PER GREEN EACH LANE AT 3B/SIGN DETAIL



WIDTH × HEIGHT	24" × 18"
EDGE TO BORDER	3 _{/8} "
BORDER WIDTH	5 _{/8} "
CORNER RADIUS	2"
MOUNTING	GROUND
BACKGROUND	TYPE: REFLECTIVE
	COLOR: WHITE
LEGEND/BORDER	TYPE: NON-REFLECTIVE
	COLOR: BLACK
•	

# B 2 VEHICLES PER GREEN EACH LANE AT 3B SIGN DETAIL



# COORDINATES ARE TO LOWER LEFT CORNERS

Y FONT			LETT	ER POS	ITIONS	(X)			HT LEN
101/4	V	E	Н		С	L	Е		31/2
С	7	93/8	11 ⁵ / ₈	14	15 ¹ /8	17 ³ / ₈	19 ⁵ ⁄8		141/4
9	1								6
С	23/4								11/4
3	P	E	R	G	R	Ē	E	N	31/2
С	1 ³ / ₄	41/4	6 ³ /8	11 ¹ / ₄	13 ³ / ₄	16 ¹ /8	18 ¹ / ₄	20 ³ / ₈	201/2



#### NOTE:

1. VERIFY NUMBER OF VEHICLES PER GREEN WITH REGION TRAFFIC ENGINEER.

## COORDINATES ARE TO LOWER LEFT CORNERS

Y FONT			LETT	ER POS	TIONS	(X)			HT LEN
101/4	V	E	Н		С	L	E	S	31/2
С	51/2	7 ⁷ /8	10 ¹ /8	121/2	13 ⁵ /8	15 ⁷ / ₈	18 ¹ / ₈	201/4	141/4
9	2								6
С	2								2
3	Р	E	R	G	R	E	E	N	31/2
С	13/4	41/4	6 ³ /8	11 ¹ / ₄	13 ³ / ₄	16 ¹ /8	181/4	20 ³ / ₈	20 ¹ / ₂

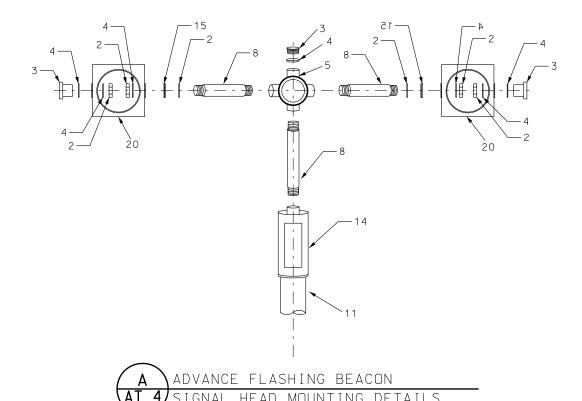
D 2 VEHICLES PER GREEN
AT 3B SIGN DETAIL

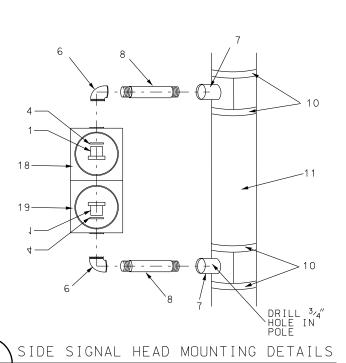
DRAWING AT

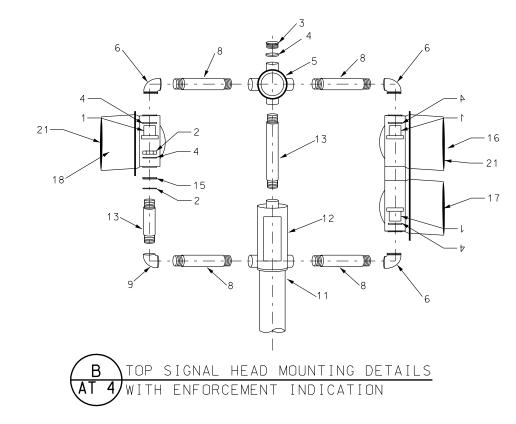
SUPPLEMENTAL DRAWING

RAMP METER SIGN PANEL

STD DWG AT 3B







# DETAIL LEGEND

- 1. LOCK NIPPLE, BRASS,  $1\frac{1}{2}$  ×  $1\frac{3}{4}$
- 2. LOCK NUT, BRASS, 11/2"
- 3. CAP, ORNAMENTAL, LONG, BRASS,  $1\frac{1}{2}$ "  $\times$   $1\frac{3}{4}$ "
- 4. WASHER, STAINLESS STEEL
- 5. HUB, CENTER W/COVER PLATE 4-WAY, BRASS
- 6. ELBOW, 90°, GAVANIZED, THREADED INSIDE, 11/2" SERRATED
- 7. ROUND POLE PLATE, GALVANIZED
- 8. PIPE, GALVANIZED, THREADED BOTH ENDS,  $1\frac{1}{2}$ " x 12",
- 9. ELBOW, 90°, GALVANIZED, THREADED INSIDE,  $1\frac{1}{2}$ "
- 10. BANDS, STAINLESS STEEL, 3/4"
- 11. POLE SHAFT
- 12. POST TOP TERMINAL COMPARTMENT, 2 WAY, BRASS, WITH NO TERMINAL BLOCK
- 13. PIPE, GALVANIZED, LENGTH VARIABLE, THREADED BOTH ENDS, 11/2"
- 14. POST TOP TERMINAL COMPARTMENT, BRASS, WITH NO TERMINAL BLOCK

#### NOTE:

1. USE SIDE SIGNAL HEAD ONLY ON SINGLE LANE RAMPS.

15. WASHER, SERRATED, 11/2"

16. SIGNAL HEAD - RED LED, 12"

17. SIGNAL HEAD - GREEN LED, 12"

18. SIGNAL HEAD - RED LED, 8"

19. SIGNAL HEAD - GREEN LED, 8"

20. SIGNAL HEAD - AMBER LED, 8"

21. VISOR - 8" AND 12"

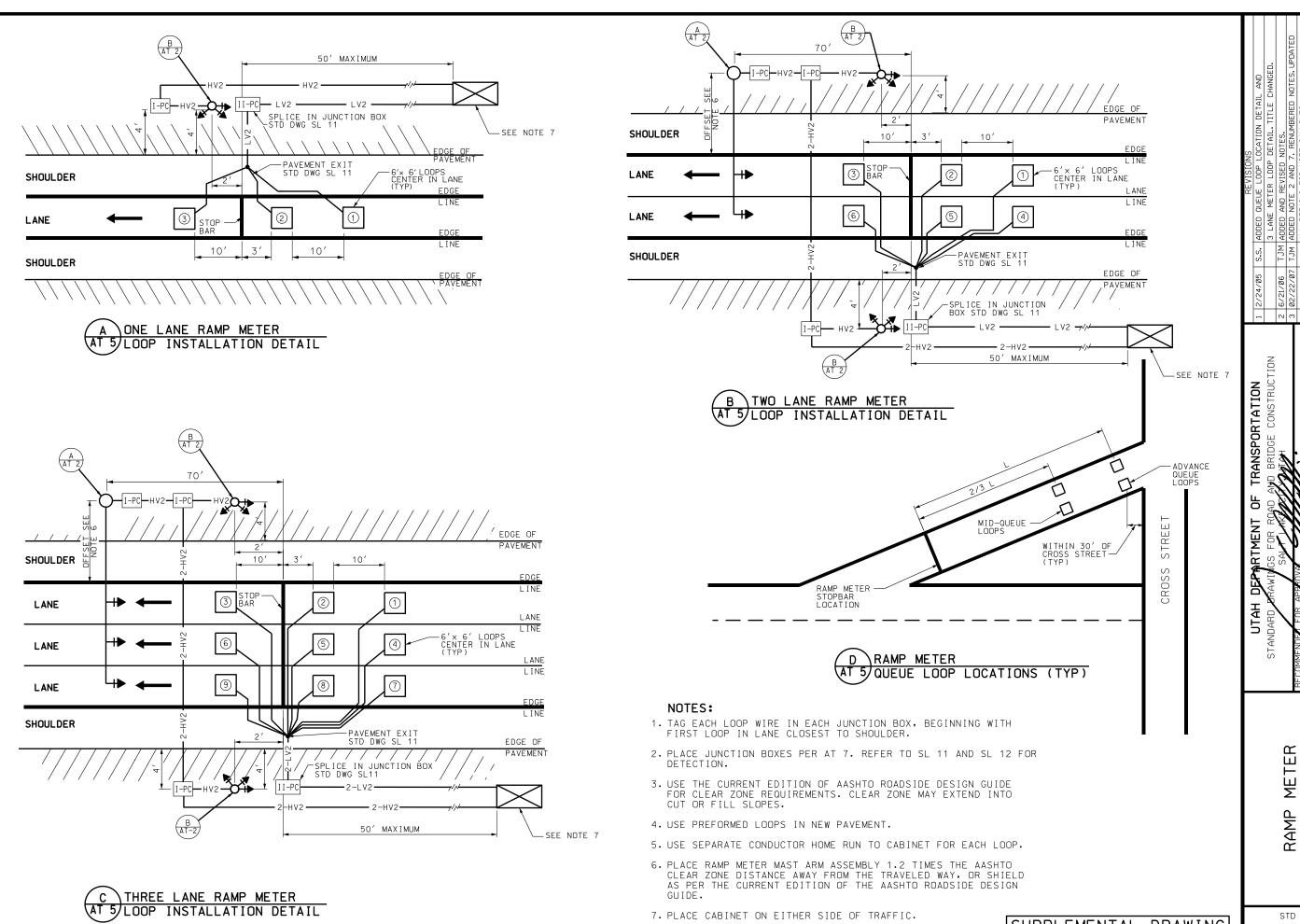
RANSPORTATION

BRIDGE CONSTRUCTION

SUPPLEMENTAL DRAWING

STD DWG

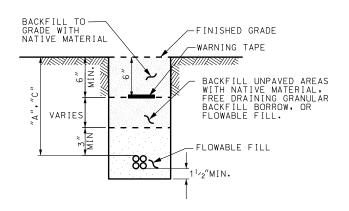
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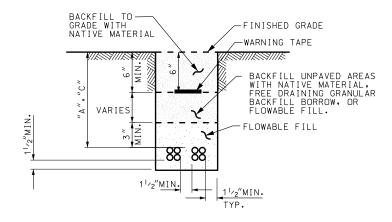


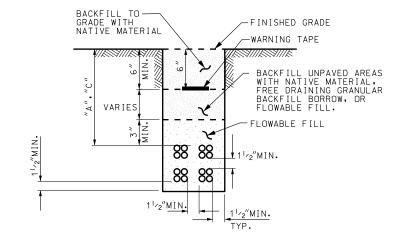
SUPPLEMENTAL DRAWING

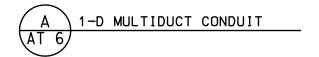
STD DWG AT 5

RAMP METER LOOP INSTALLATION













4-D MULTIDUCT CONDUIT

#### TABLE 1. T PATCH RESTORATION

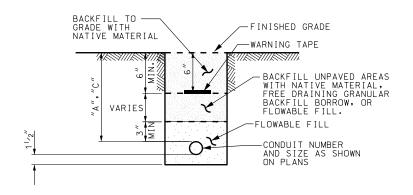
TABLE TO TEATOR RES	TURATION
EXISTING ASPHALT PAVEMENT THICKNESS (T1) IN INCHES	RESTORATION T PATCH THICKNESS IN INCHES
0 - 31/2	31/2
31/2 - 7	MATCH EXISTING DEPTH
7 OR GREATER	7

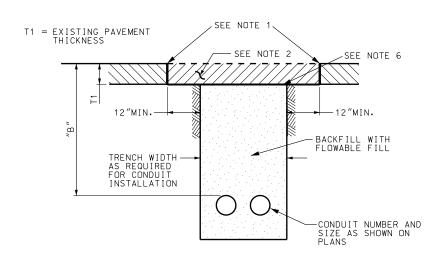
#### TABLE 2. MINIMUM CONDUIT DEPTH

	DEPTH IN INCHES	AREA
А	36	OUTSIDE 20 FT OF PAVEMENT EDGE
В	36	HIGHWAY RIGHT OF WAY UNDER ASPHALT PAVEMENT SURFACE
С	60	WITHIN 20 FT OF PAVEMENT EDGE

#### NOTES:

- 1.SAW CUT PAVEMENT EDGES. APPLY A HOT-POUR RUBBERIZED ASPHALT JOINT SEALANT OR APPROVED EQUAL, APPLIED AFTER PATCH IS INSTALLED.
- 2.USE HMA MATERIAL FOR T-PATCH. USE OPEN-GRADED SURFACE COURSE FOR PATCHES GREATER THAN 12 FEET WIDE, AND WHERE OPEN-GRADED SURFACE COURSE EXISTS.
- 3.ENCASE ALL OPEN TRENCH CONDUIT IN FLOWABLE FILL, ENCASE PLOWED AND BORED CONDUIT IN FLOWABLE FILL AT EXPOSED LOCATIONS, CONDUIT SPLICE POINTS, AND BOX
- 4. INSTALL DETECTABLE PULL TAPE IN ALL EMPTY CONDUITS.
- 5.EVENLY APPLY TACK COAT ON FINAL BACKFILL BEFORE INSTALLING T-PATCH.





NON-MULTIDUCT CONDUIT



SUPPLEMENTAL DRAWING

- 2 TRANSPORTATION

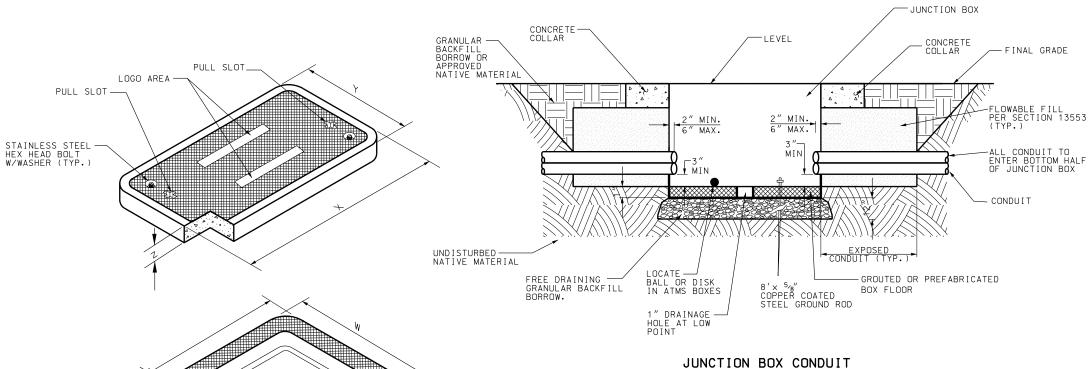
D BRIDGE CONSTRUCTION S **DETAIL**\$ CONDUIT

STD DWG

AT 6

REVISED MULTI-DUCT CONFIG A REGUREMENTS.
REMOVED LOCATE CONDUIT. RED FIBER AND DETECTABLE PULL I CELLS. CLARIFIED FLOWABLE F REGUIREMENTS. ADDED NOTES 3:

Σ



# JUNCTION BOX CONDUIT PENETRATION DETAIL

JUNCTION BOX CONCRETE COLLAR DETAIL

# TABLE 1. JUNCTION BOX LID STATIC VERTICAL LOAD RATING

MINIMUM	MINIMUM	TEST
DESIGN	TEST	AREA
LOAD (16)	LOAD (1b)	(inch)
16,000	33,500	

# BOX AND LID DIMENSIONS

BOX TYPE	"L" inch	"W" inch	"H" inch	"T" inch	"X" inch	"Y" inch	"Z" inch
I-PC	25	16	24	11/2	231/4	13 ³ ⁄4	2
II-PC	37 ⁵ ⁄8	26	24	11/2	35 ⁵ ⁄8	24	3
III-PC	49 ⁵ ⁄8	32 ¹ /8	24	2	47 ⁵ /8	30 ¹ /8	3

- 1. STAMP BOX LOGO INTO THE LID FROM THE FACTORY. (SEE SECTION 13554).
- 2. DO NOT PLACE JUNCTION BOXES IN THE TRAVELED WAY OR ON FREEWAY SHOULDERS.
- 3. CONCRETE COLLAR WIDTH VARIES WHEN ADJACENT TO ATMS CABINETS. REFER TO AT AND SL SERIES STD DWGS.
- 4. PROVIDE CONCRETE COLLARS EXCEPT WITHIN CONCRETE PAVED AREAS.
- 5. INSTALL CONDUIT PLUG PER SECTION 13554.
- 6. ALIGN ATMS CONDUIT BY COLOR ON EACH SIDE OF THE JUNCTION BOX.

SUPPLEMENTAL DRAWING

STD DWG AT 7

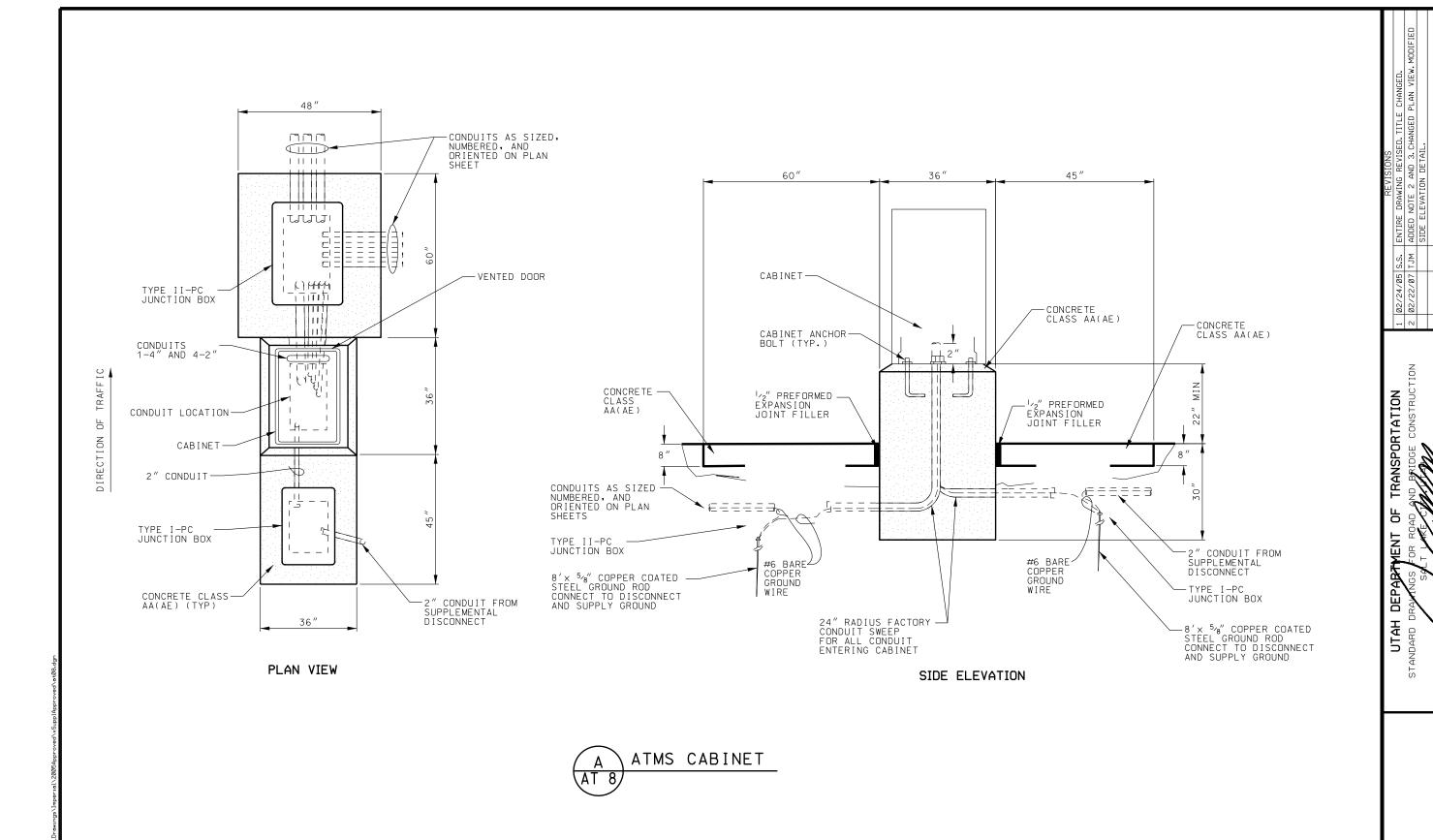
POLYMER-CONCRETE JUNCTION BOX DETAILS

TRANSPORTATION

AD BRIDGE CONSTRUCTION

AA (AE) CONCRETE COLLAR AROUND BOX · 1/2" EXPANSION JOINT MATERIAL TRIMMED FLUSH WITH BOTH SURFACES -COVER -JUNCTION BOX

NOTES:



NOTE:

- 1. SEE STD DWG AT 9 FOR CABINET DISCONNECT AND TRANSFORMER DETAIL.
- 2. FIELD VERIFY CONDUIT LAYOUT IN FOUNDATION TO AVOID CONFLICT WITH CABINET.
- 3. SEE STD DWG AT 7 FOR TYPICAL ATMS JUNCTION BOX INSTALLATION.

SUPPLEMENTAL DRAWING

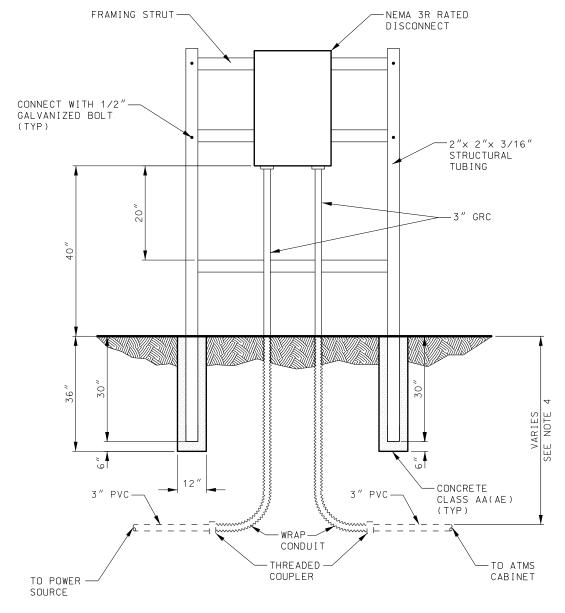
ATMS CABINET

RECOMMENDED. FOR A

CHAIRMAN STANDARD

STANDARD DRAWING TITLE

DEPUTY DIRECTOR

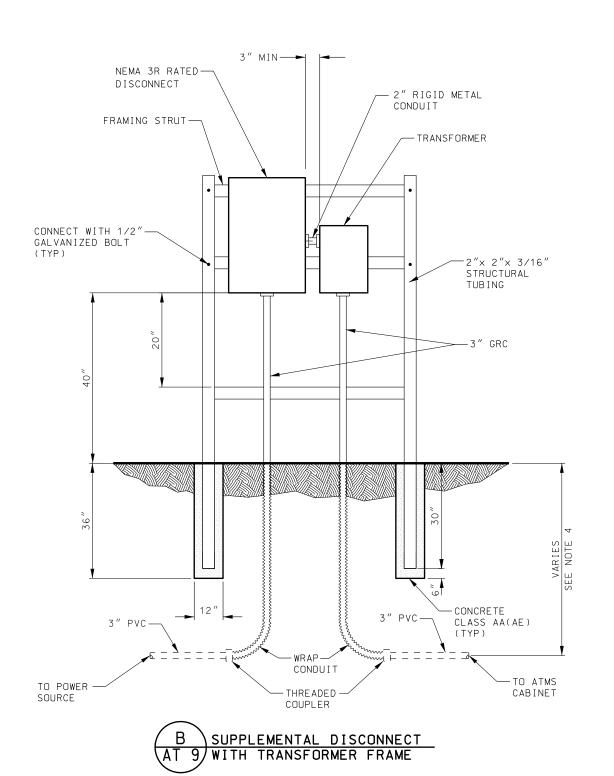


A SUPPLEMENTAL DISCONNECT FRAME

NOTF:

- 1. FRAME SHOULD BE LOCATED BETWEEN 10 TO 15 FEET FROM CABINET.
- 2. ROUND OFF SHARP EDGES OF STRUCTURAL TUBING.
- 3. ATTACH TRANSFORMER AND DISCONNECT TO FRAMING STRUT WITH WATERTIGHT GASKETS AND GALVANIZED HARDWARE.

4. FOR CONDUIT DEPTH REFER TO SECTION 13553.



SUPPLEMENTAL DRAWING

ATMS CABINET

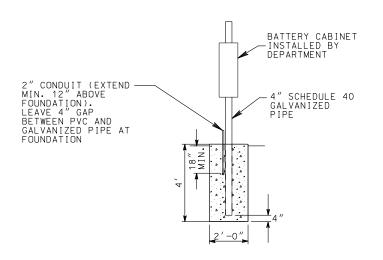
ATMS CABINET

DISCONNECT AND

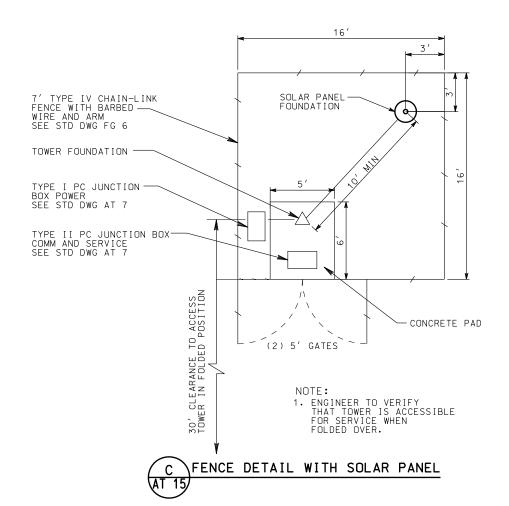
TRANSFORMER FRAME

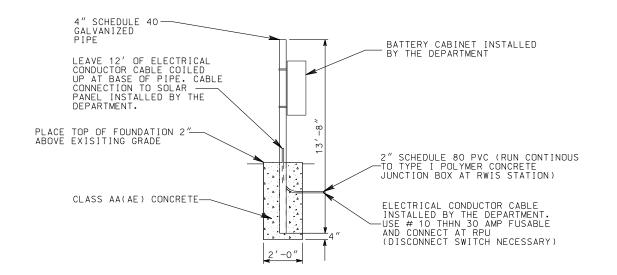
TRANSPORTATION
ND BRIDGE CONSTRUCTION

UTAH DEPARTMEN STANDARD DRAWING FOR

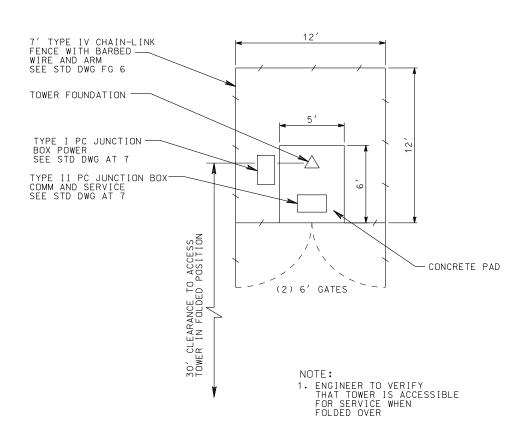


# SOLAR PANEL FOUNDATION DETAIL AT 15/(FRONT VIEW)





# SOLAR PANEL FOUNDATION DETAIL AT 15/(SIDE VIEW)



FENCE DETAIL WITHOUT SOLAR PANEL

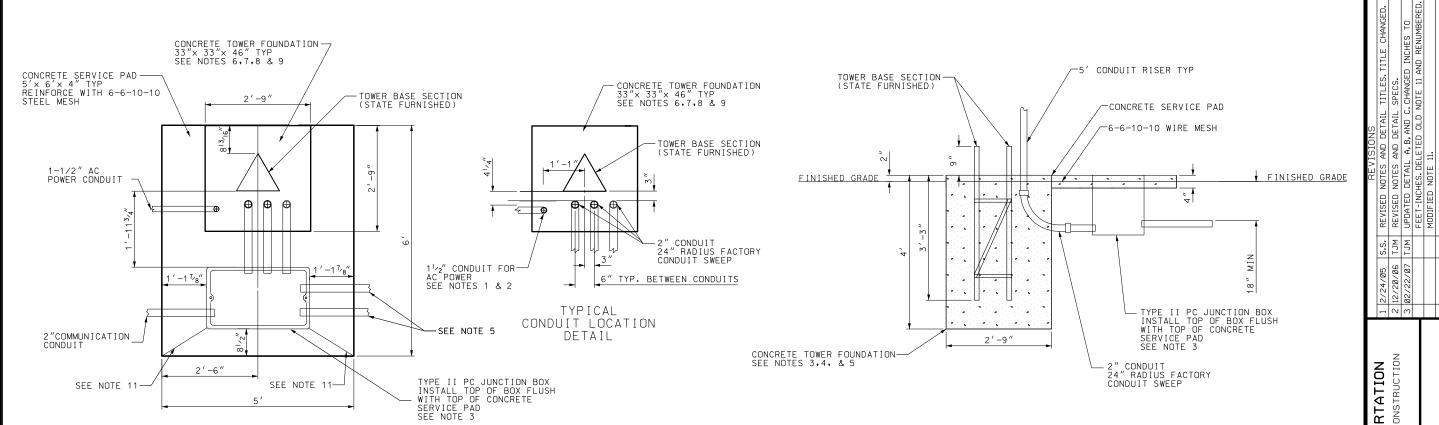
SUPPLEMENTAL DRAWING

TRANSPORTATION 님 DEPAR. UTAH [ Standard CHAIRMAN APPROVED S RWIS SITE AND FOUNDATION DETAIL STD DWG AT 15

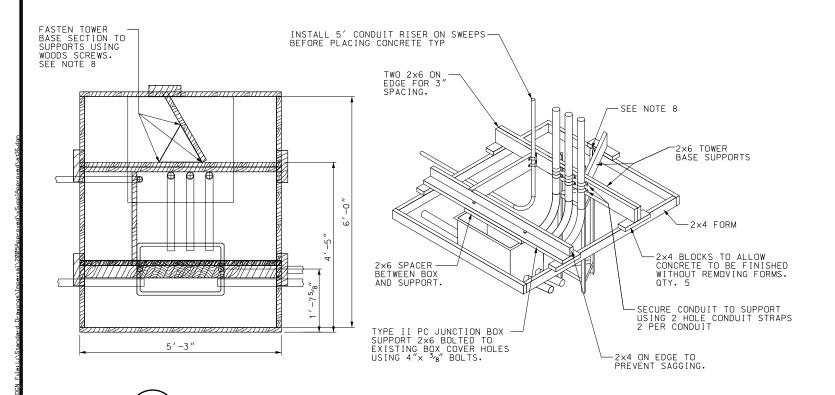
AND REVISED NOTES. DETAIL A, B, C, AND D, CHANG

REVISED DET
INCREASED P
ADDED NOTES
INCHES TO F

S.S. TJM



B RWIS TOWER BASE AND SERVICE AT 16 PAD INSTALLATION DETAIL LEFT SIDE VIEW



RWIS TOWER BASE AND SERVICE

RWIS TOWER BASE AND SERVICE

AT 16/ PAD CONCRETE FORM DETAIL

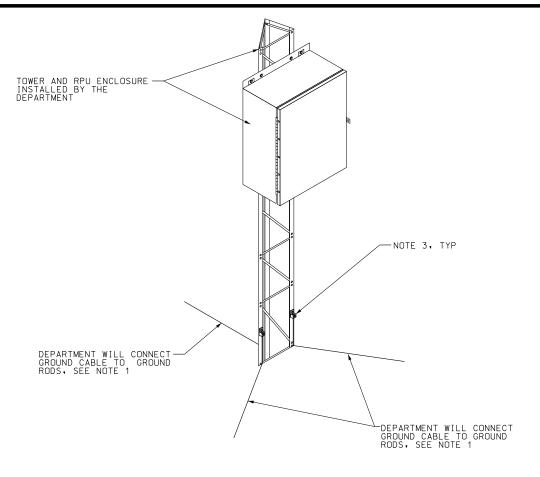
AT 16/ PAD INSTALLATION DETAIL

#### NOTES:

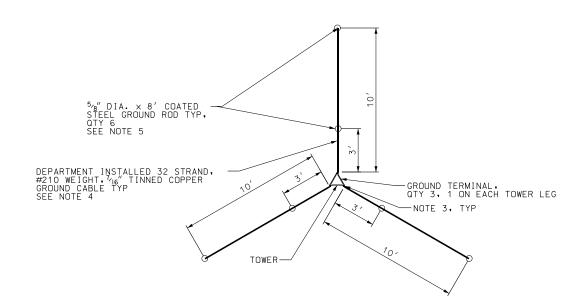
- 2. CONDUIT LOCATIONS SHOWN ARE FOR A SQUARE D TYPE D SAFETY SWITCH, CATALOG # D221NRB.
- 3. INSTALL POLYMER CONCRETE JUNCTION BOXES AS PER STD DWG AT 7.
- 4. INSTALL ALL CONDUITS IN TOWER BASE CONCRETE TO PERMIT CONTINUATION TO RWIS ENCLOSURE.
- 5. STUB OUT 2" CONDUIT FROM POLYMER CONCRETE JUNCTION BOX TO BEYOND SERVICE PAD FOR SENSOR CABLES. ORIENT TOWARD NEXT JUNCTION BOX AS APPROPRIATE.
- 6. CONCRETE, MINIMUM CLASS AA(AE).
- 7. ALL SENSOR CABLES INSTALLED TO POLYMER CONCRETE JUNCTION BOX AND PULLED THROUGH 2" DIAMETER, 24" RADIUS, 90 DEGREE SWEEP FACTORY CONDUIT INTO RWIS ENCLOSURE.
- 8. LEVEL THE TOP OF THE TOWER BASE SECTION TO ASSURE A STRAIGHT AND PLUMB TOWER INSTALLATION. THE TOP OF THE TOWER BASE SECTION MUST BE 9" ABOVE THE CONCRETE SERVICE PAD.
- 9. FINISH CONCRETE TO DRAIN WATER.
- 10. THE FORM DETAIL SHOWN IS TYPICAL FOR A FLAT SURFACE INSTALLATION. MODIFY AS APPROPRIATE FOR FIELD CONDITIONS.
- 11. SCORE CONCRETE FROM THE CORNER OF THE BOX TO THE CORNER OF THE CONCRETE FOR AN EXPANSION JOINT.

TRANSPORTATION P TMEN. UTAH BASE AND D LAYOUT RWIS TOWER E SERVICE PAD STD DWG AT 16

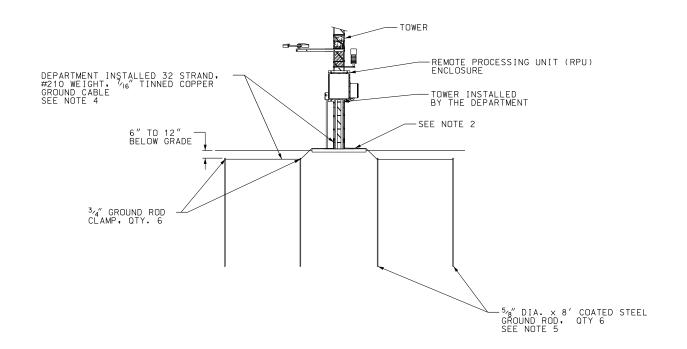
SUPPLEMENTAL DRAWING







C GROUND CABLE TERMINATION DETAIL AT 17 PLAN VIEW



# B GROUND CABLE TERMINATION DETAIL AT 17 PROFILE VIEW

#### NOTES:

- 1. DEPARTMENT WILL PLACE GROUND CABLES ON THE TOP OF CONCRETE PAD.
- 2. DEPARTMENT WILL ANCHOR GROUND CABLES FLAT AGAINST CONCRETE PAD WITH SUITABLE CLAMPS/ANCHORS. EXCESS WIRE TO BE ATTACHED TO TOWER BY THE DEPARTMENT.
- 3. INSTALL GROUND RODS FOR ALL 3 LEGS OF THE TOWER, DEPARTMENT WILL INSTALL GROUND WIRE.
- 4. DO NOT CUT WIRE, SHOULD BE CONTINUOUS TO EACH GROUND ROD.
- 5. STAKE OR FLAG THE LOCATIONS OF ALL INSTALLED GROUND RODS.

REVISED NOTES.
CLARIFIED DEPARTMENT WORK
UPDATED DETAILS A, B, AND C.NOTES CHANGED S.S. MJT MJT TRANSPORTATION

BRIDGE CONSTRUCTION Н UTAH GROUND ROD INSTALLATION TOWER GROUNDING AND STD DWG

SUPPLEMENTAL DRAWING

AT 17

SHOULDER SHOULDER LANE 0 | 0 | W | 4 | W | 0 (INCLUDING HOV_LANE) 24 | 22 | 20 | 18 | 16 | 14

TMS DETECTION ZONE LAYOUT (TYP) AT 18 SOUTHBOUND OR WESTBOUND

SHOULDER SHOULDER 0 0 4 0 4 0 0 (INCLUDING HOV LANE) 1 | 3 | 5 | 7 | 9 | 11

TMS DETECTION ZONE LAYOUT (TYP) (AT 18) NORTHBOUND OR EASTBOUND

NOTES:

1.NUMBER ADDITIONAL DETECTORS INCREMENTALLY AFTER MAINLINE DETECTORS.

2.PROVIDE DETECTION LAYOUT MAP IN EACH CABINET.

3.REFER TO STD DWG SL 12 FOR LOOP DETECTION DETAILS.

4.IF COMBINED WITH RAMP METERING, ONLY SAME DIRECTION OF TRAVEL MAY BE COMBINED. USE SEPARATE ATMS CABINET FOR OPPOSING MAINLINE TRAFFIC.

LEGEND

# CABINET DETECTOR NUMBER ASSIGNMENT.

SUPPLEMENTAL DRAWING

STD DWG

TRANSPORTATION

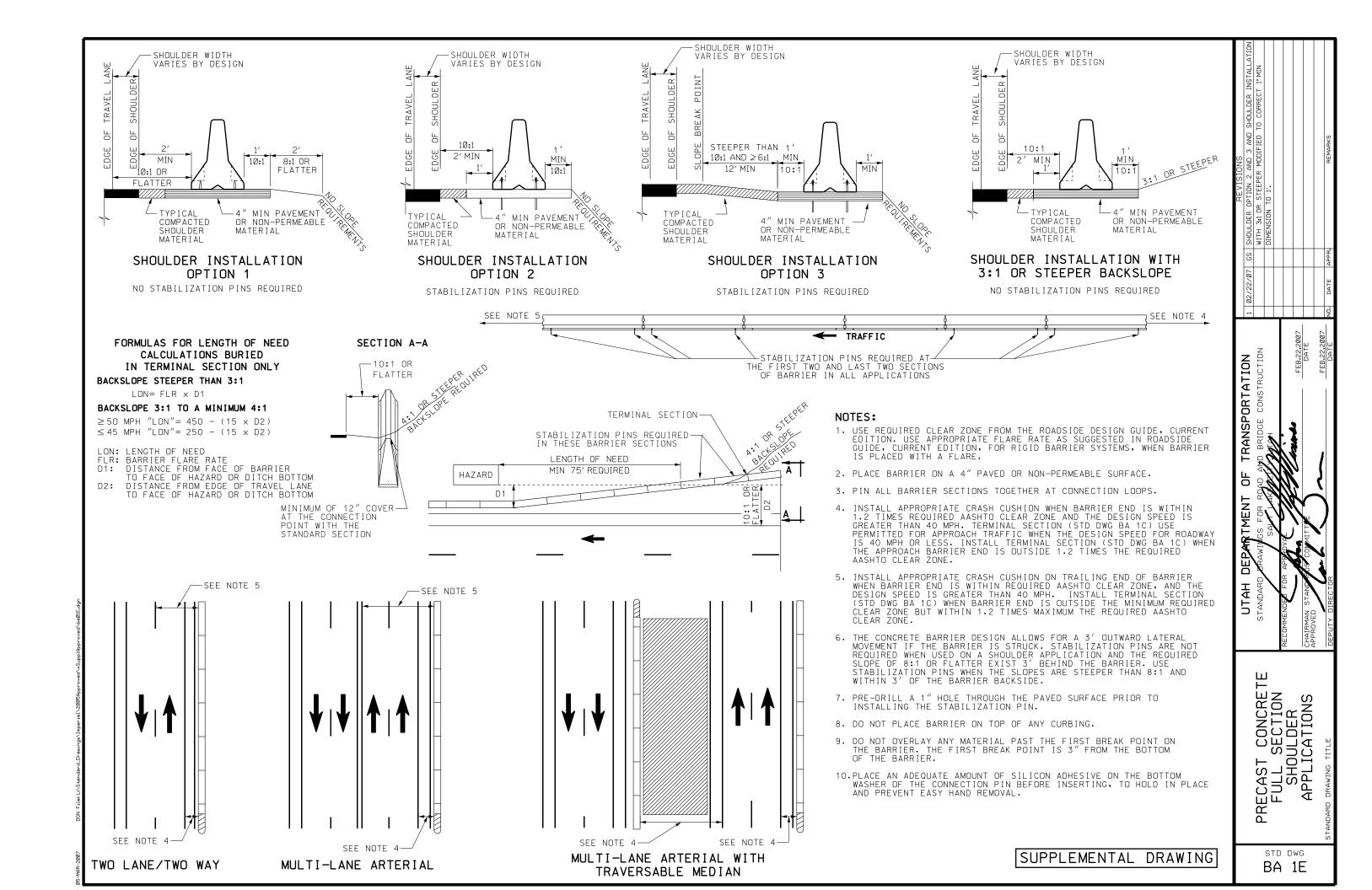
BRIDGE CONSTRUCTION

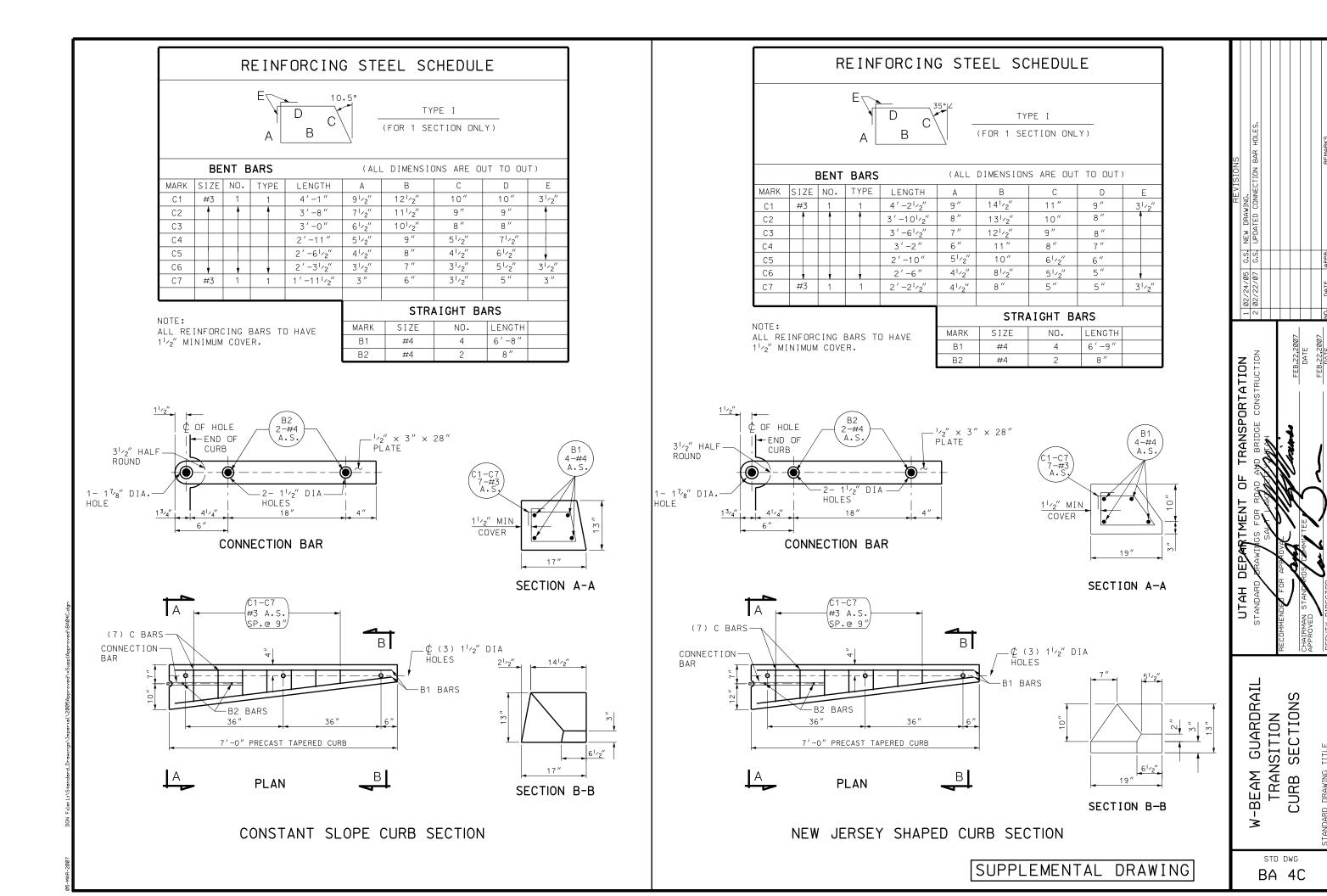
OF

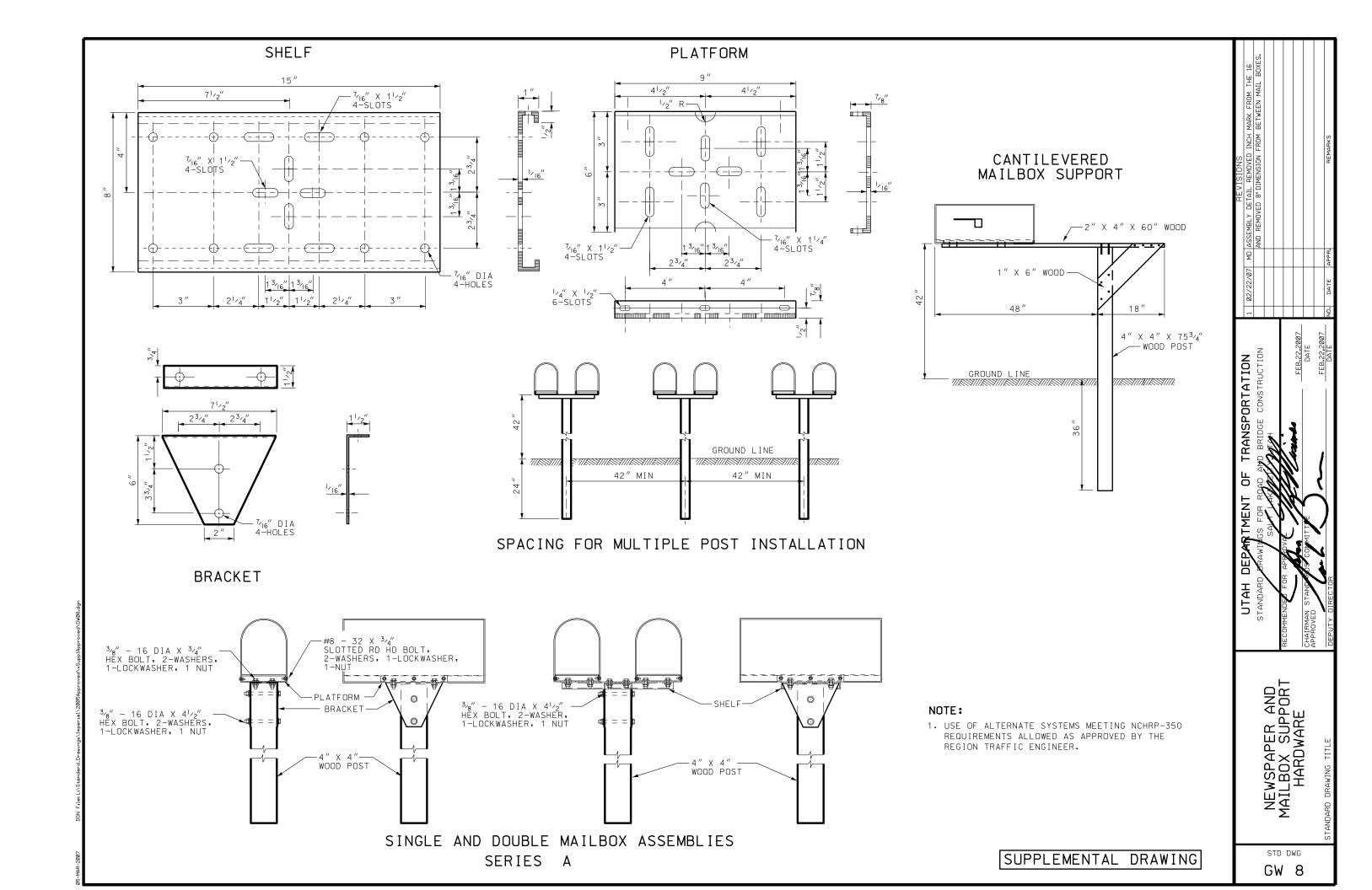
UTAH DEPART STANDARD PRAWINGS

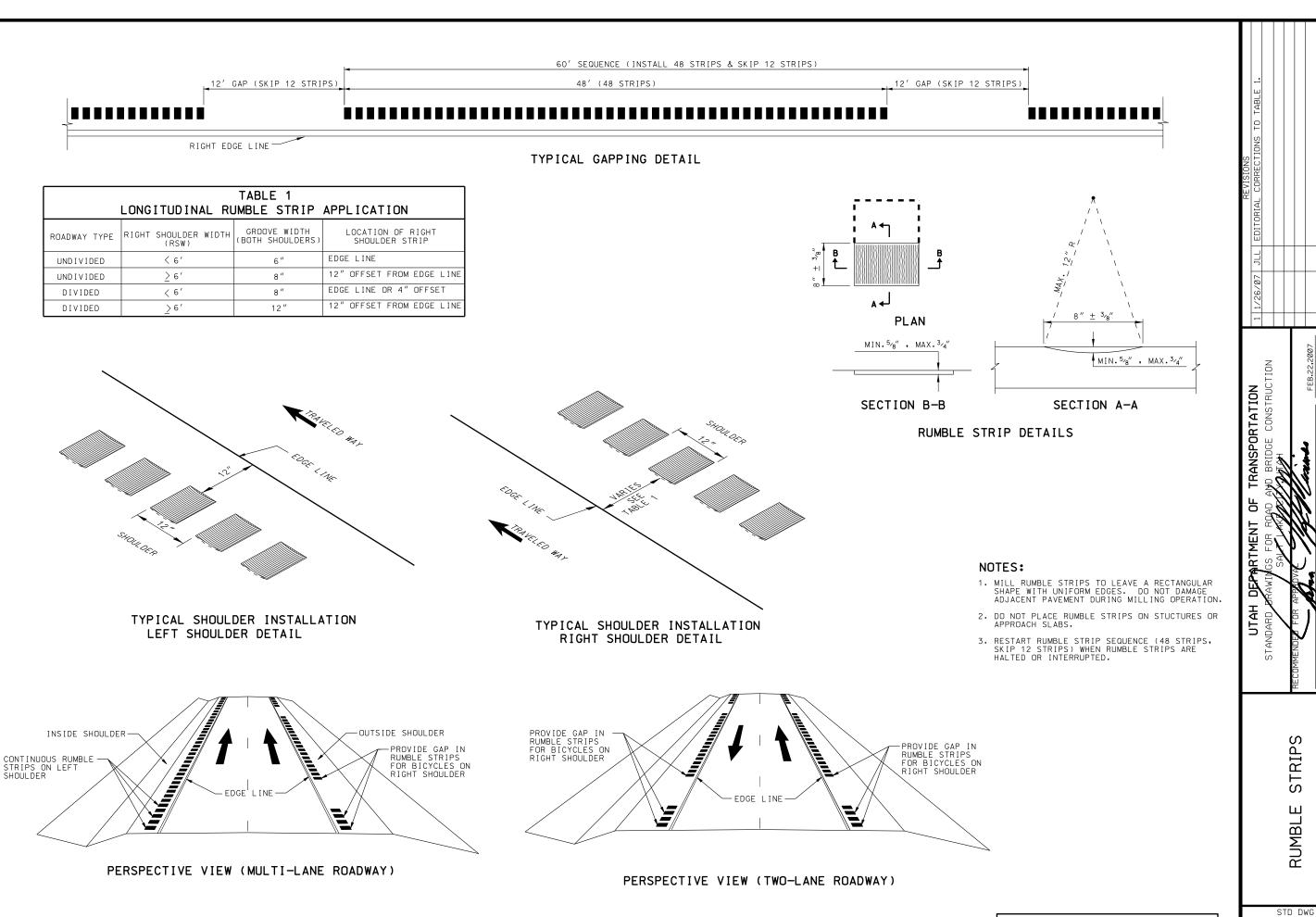
AT 18

TMS DETECTION ZONE LAYOUT







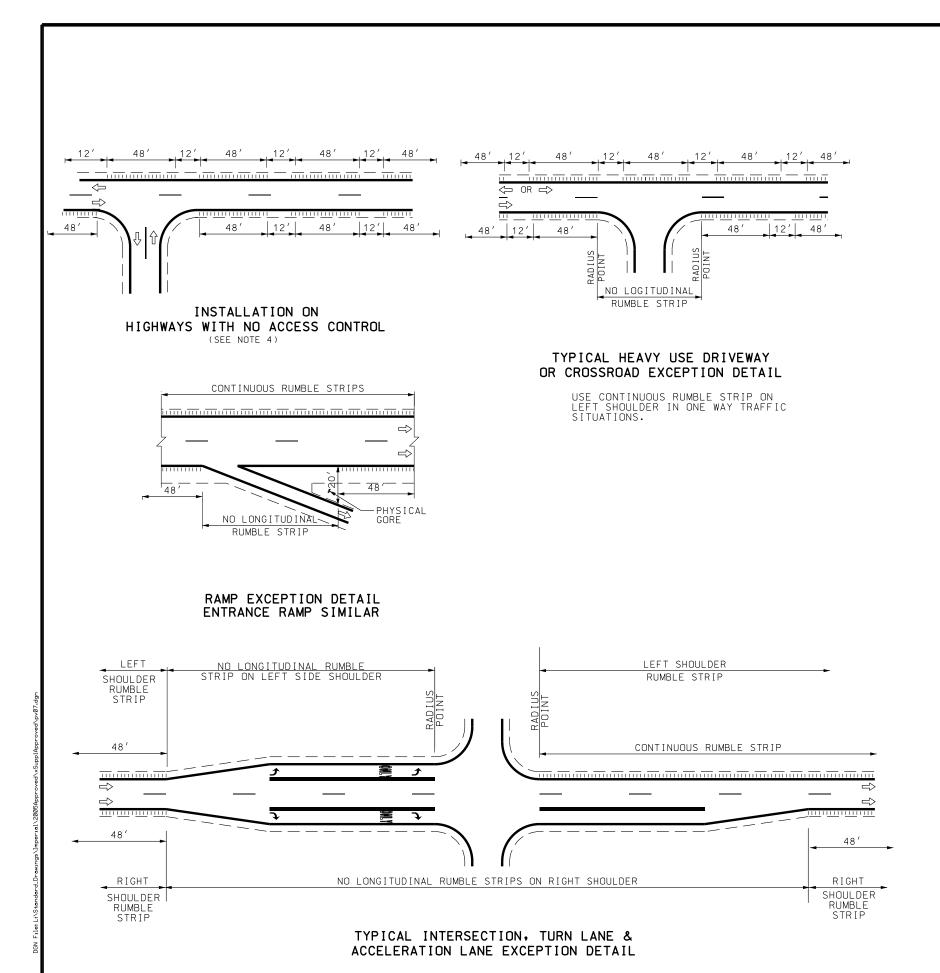


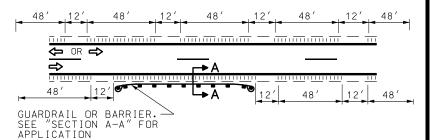
SUPPLEMENTAL DRAWING

STRIPS

RUMBLE

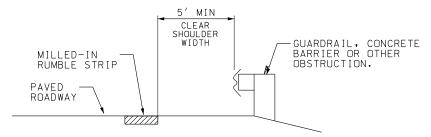
PV 6





#### TYPICAL GUARDRAIL AND/OR BARRIER

USE CONTINUOUS RUMBLE STRIP ON LEFT SHOULDER IN ONE WAY TRAFFIC SITUATIONS.



# SECTION A-A ROADSIDE BARRIER EXCEPTION

SEE NOTE 3

#### NOTES:

REQUIREMENTS.

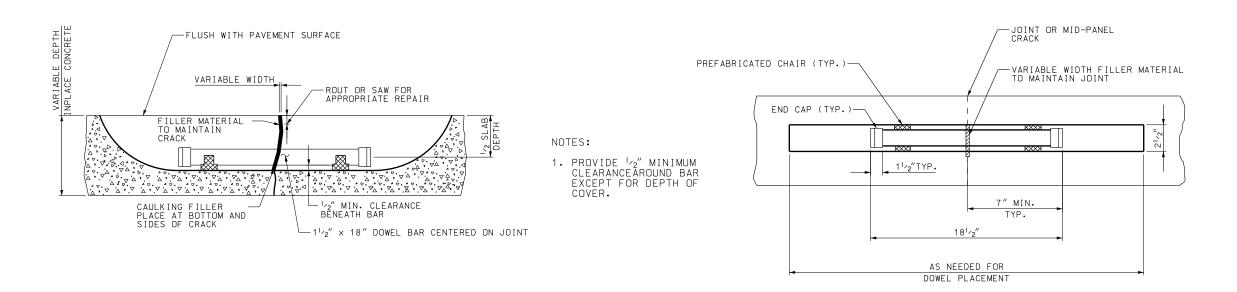
- 1. OMIT RUMBLE STRIPS ACROSS PRINCIPAL INTERSECTING ROADWAYS AS PER DETAILS.
- 2. IF BICYCLE TRAFFIC EXISTS OR IS ANTICIPATED THEN PROVIDE A MINIMUM CLEAR SHOULDER WIDTH OF 4 FEET. APPLY THIS REQUIREMENT TO BOTH SHOULDERS OF UNDIVIDED HIGHWAYS AND THE RIGHT SHOULDER ONLY ON DIVIDED HIGHWAYS.
- 3. MAINTAIN 5 FEET MINIMUM CLEAR SHOULDER WIDTH BETWEEN OBSTRUCTION AND INSIDE EDGE OF RUMBLE STRIP, OTHERWISE ELIMINATE RUMBLE STRIP.
- 4. ON HIGHWAY WITH NO ACCESS CONTROL PLACE RUMBLE STRIP AS PER STD DWG PV 6.

SUPPLEMENTAL DRAWING

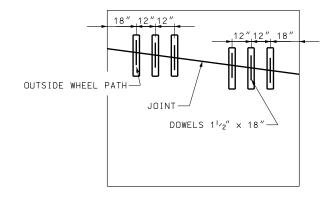
				REVISIONS
		UIAH UTAKIMENI UT IKANSPUKIAIIUN	1 1/26/07 JLI	1/26/07 JLL EDITORIAL CORRECTIONS TO NOTE 2 AND 3
		STANDARD JRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION		TO SECTION A-A.
s F		SALT ACTION OF THE STATE OF THE		
TD <b>&gt;\</b>	BIMBIF STRIPS -			
/ /		RECOMMENDED FOR APPROVA		
wG	S LIVICAL AFFLICATION	FEB.22,2007		
7		CHAIRMAN STANDARDS COMMITTE		
		FFB.22.2007		
	STANDARD DRAWING TITLE		NO, NATE APPR.	REMARKS
		JUN		

# DOWEL BAR RETROFIT

### DESCRIPTION: THIS REPAIR IS INTENDED TO BE USED TO ESTABLISH/RESTORE LOAD TRANSFER AT JOINTS OR CRACKS



# TYPICAL RETROFIT DOWEL LAYOUT (FOR JOINT)

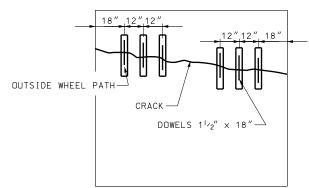


TYPICAL LANE

#### NOTES:

- PROVIDE DOWEL BARS PARALLEL TO THE CENTERLINE AND TO THE PAVEMENT SURFACE.
   LIMIT DEVIATIONS FROM PARALLEL TO '/4" IN THE LENGTH OF THE DOWEL BARS.

# TYPICAL RETROFIT DOWEL LAYOUT (FOR MID-PANEL CRACK)



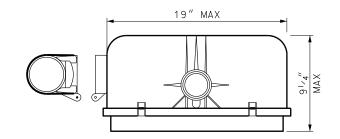
SUPPLEMENTAL DRAWING

# RANSPORTATION D BRIDGE CONSTRUCTION RETROFIT BAR DOWEL

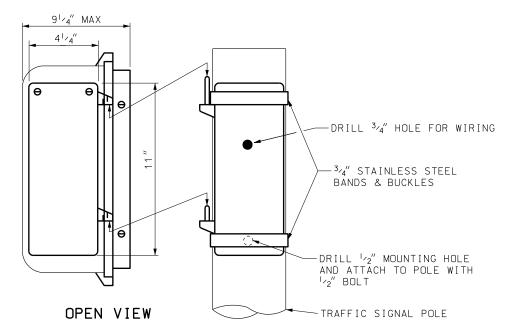
STD DWG

PV 9

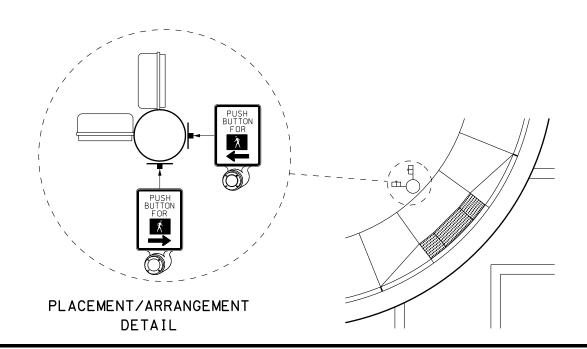
# CLAMSHELL MOUNTING HARDWARE

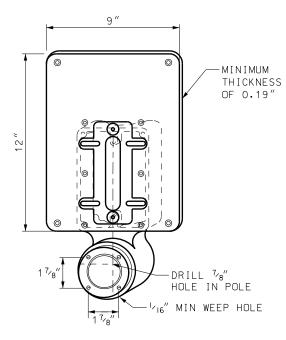


TOP VIEW



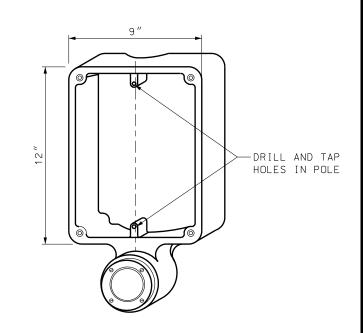
# TYPICAL MOUNTING OF PEDESTRIAN SIGNAL AND PUSH BUTTON ON A SIGNAL POLE





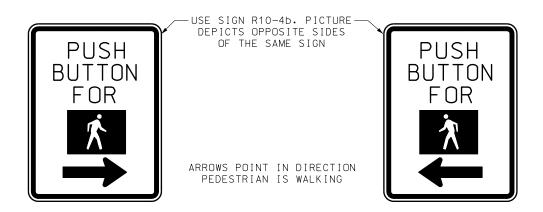
# OPTION 1

FRAME TO ACCOMMODATE 5" x 7" SIGN WITH ADAPTOR PLATE FOR 9" x 12" SIGN



#### OPTION 2

FRAME TO ACCOMMODATE 9" × 12" SIGN



## NOTES:

- 1. MOUNT PEDESTRIAN SIGNALS  $9'-3'' \pm 6''$  FROM CONCRETE LANDING TO BOTTOM OF HOUSING.
- 2. MOUNT PUSH BUTTONS 42"  $\pm$  2" ABOVE CONCRETE LANDING. SEE STD DWG GW 5A, 5B, AND 5C FOR LANDING DETAILS.
- 3. PLACE PUSH BUTTON AND PEDESTRIAN SIGNAL WITHIN TEN FEET OF THE FRONT OF DETECTABLE WARNING SURFACE, MEASURED FROM THE CENTER OF THE CURB CUT.
- 4. WHEN USING PEDESTRIAN POLES FOR PUSH BUTTONS AND PEDESTRIAN SIGNALS, USE ONE POLE FOR EACH DIRECTION OF TRAVEL. TWO  $9\,^{\prime\prime}$  x 12 $^{\prime\prime}$  SIGN FRAMES WILL NOT FIT ON ONE PEDESTRIAN POLE.

SUPPLEMENTAL DRAWING

					REVISIONS	
	CIAH DEAR MENI OF IRANSPORTATION	1 15	2/18/03	LM EN	12/18/03 LM ENTIRE DRAWING MODIFIED.	
	STANDARD DRAWINGS FOR ROAD AND GRIDGE CONSTRUCTION	2 6	12/22/07	LM EN	!   02/22/07 LM   ENTIRE DRAWING MODIFIED.	
Z	SALTLAKE CHILDRAN					
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> iaM	RECOMMENIED FOR APPOVAL					
MDL -	FEB.22,2007					
	CHAIRMAN STAND OS CO MITTE					
	FFR.22.2887					
		NO.	NO. DATE 6	APPR.	REMARKS	
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PEDESTRIAN SIGNAL ASSEMBL

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